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## Is science in big trouble?

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# Editorial: “Is science in big trouble?”

**E** [elsevier.com/connect/editorial-is-science-in-big-trouble](https://elsevier.com/connect/editorial-is-science-in-big-trouble)

In 2017, Elsevier will once again sponsor the [World Conference on Research Integrity](#). We share the same desire to promote the integrity of research – from proper design methodology to ethical submission and publication to making research data available for re-use.

For this Elsevier Connect story, we asked [Prof. Lex Bouter of the Vrije Universiteit Amsterdam](#) to provide an introduction to the conference. The following editorial was previously published in [European Science Editing](#) as such an introduction – and we are grateful to Prof. Bouter and the European Association of Science Editors for their permission to republish it here.

— [IJsbrand Jan Aalbersberg](#), PhD, SVP Research Integrity, Elsevier

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## Is science in big trouble?

Recently a sobering overview of the seven biggest problems facing science<sup>1</sup> suggested that science is in big trouble. Although the authors conclude that science is not doomed, they make it abundantly clear that there is an urgent need for improvement. The problems mentioned concern poor study design, failing peer review, lack of replicability, and the counterproductive stress young academics face. Number one on the list is shortage of research funds, leading to a perverse incentive to produce positive and spectacular results. A recent survey in *Times Higher Education* suggested that there is indeed a huge problem with research integrity.<sup>2</sup>

In my view lack of money in the absolute sense is probably not the main driver of questionable research practices or worse. But the available finances relative to the scientific work force may very well be an important determinant. The fact that in my country and elsewhere the ‘hit rate’ of grant applications is now below 10% may be a strong driver to cut corners with a view to making your work look more spectacular. Next to increasing budgets, which is unlikely to happen, a decrease in the number of scientists is an option we may need to consider seriously.

Maybe even more important is the poor value for money we get in research, as was quite convincingly illustrated for biomedical research<sup>3,4</sup>. Even when the actual proportion of ‘research waste’ is substantially less than 85% there is still a lot of room for improvement. The road ahead seems to consist of more critical assessment of the relevance of the research questions and the quality of the research methods. Once a project is funded it’s crucial that full transparency of all aspects is realised, including complete reporting of its results. That will make research slower and projects more expensive. Consequently, fewer projects can be granted with the same budget.

These worries about the relevance, quality and integrity of science emphasise the need to act and to foster responsible research practices more strongly by means of offering education focussing on the dilemmas scientists face, introducing effective regulations, and making the necessary changes in the system of science. Although a sound empirical basis is not yet available, we have enough insight in the dos and don’ts to act<sup>5–8</sup>. Important forums for reflection and debate on ways to improve research practices are the world conferences on research integrity. The next one will be in Amsterdam in May 2017.<sup>9</sup>

The [5th World Conference on Research Integrity](#) will be organized around the interlinked themes of transparency and accountability, building on the premise that the honesty and reliability of research are best served by openly sharing all aspects of research and by taking personal responsibility for it. The conference programme will explore the challenges of promoting transparency and accountability and the consequences of the failure to do so, with the overall goal of developing an evidence-based agenda for addressing the various lapses of integrity that seem to have become an endemic problem in research today.

The world conferences on research integrity have produced two consensus documents: the Singapore Statement on Research Integrity<sup>10</sup> and the Montreal Statement on Research Integrity in Cross-Boundary Research Collaborations<sup>11</sup>. One goal of the 5th WCRI will be to develop the Amsterdam Agenda for Promoting Transparency and Accountability. This is initially envisioned as an action-oriented one-page statement drawing attention to the urgent need to fight questionable research practices. Drafts will be made available before the conference with ample opportunity for discussion and debate with a view to improving and focussing on the final document.

Readers have a responsibility for improving the relevance, quality and integrity of scientific research, with an emphasis on the prevention of selective reporting. I very much hope to welcome you to the 5th World Conference on Research Integrity.

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## The conference

The [5th World Conference on Research Integrity](#) will take place in Amsterdam May 28-31, 2017. On Twitter, follow [@WCRI2017](#).

## Related workshop

In conjunction with the conference, Elsevier is co-organizing a workshop on “The Role of Text and Image Processing in Fostering Responsible Research Practices.” This workshop is for people interested in exploring current and future applications of technology for better science, with a focus on how text mining and image processing technologies can be used in this context. Aside from publishers, editors and others directly involved in validation of research, the workshop is also seeking participation from experts in applicable technology areas like text mining, natural language processing and image processing.

The workshop will feature a variety of presenters from academia and industry, including researchers, developers and software providers, and there will be ample opportunity for discussion. To participate, you need to register for the 5<sup>th</sup> WCRI.

We will post more details here soon.

— IJsbrand Jan Aalbersberg